

REMARKS

Claims 1-40 are pending in this application. Claims 1-6, 10-17, 20, and 22-40 stand rejected and claims 7-9, 18, 19, and 21 are objected to. Applicants wish to thank the Examiner for the indication of allowable subject matter in claims 7-9, 18, 19, and 21. By this Amendment, claims 1, 2, 3, 20, 21, 28, and 37 have been amended. The amendments made to the claims do not alter the scope of these claims, nor have these amendments been made to define over the prior art. Rather, the amendments to the claims have been made for cosmetic reasons to improve the form thereof. In light of the amendments and remarks set forth below, Applicants respectfully submit that each of the pending claims is in immediate condition for allowance.

The Examiner takes the position that Belli et al. disclose all the features of the present invention defined in claims 1-2, 14-16, 20, 22, 25, and 28, and rejects those claims under 35 U.S.C. § 102. The Examiner further takes the position that Duncan et al. disclose the remaining features of the present invention defined in claims 3-6 and 17, and rejects those claims under 35 U.S.C. § 103(a). The Examiner further takes the position that Suenaga discloses the remaining features of the present invention defined in claims 10-13, 23-24, 26-27, 29-30 and 37-40, and rejects those claims under 35 U.S.C. § 103(a). The Examiner further takes the position that Klynas discloses the remaining feature of the present invention defined in claims 31- 36, and rejects those claims under 35 U.S.C. § 103(a). Applicants respectfully disagree.

The Applicants thank the Examiner for the admission of allowable claims 7-9, 18-19 and 21 and allowability of claim 18.

The Applicants have reviewed Belli, and assert that Belli does not disclose the present invention.

Particular Feature Introduced In Independent Claims

In order to clarify the present invention, Applicants have amended the independent claims to include the limitation that the accumulator includes "an array of pillars." See, independent claims 1, 20, 28, and 37. This feature is clearly distinguishable from the prior art disclosed in Belli.

The claimed accumulator of the present invention results in the following advantages. As written in the specification for the present application, the vibrating portion of the percussion instrument excites the vibrations of the air, which the human being hears as the percussion sound. The narrower the area of the vibrating portion is, the smaller the energy transferred to the air is. From the point of view, the present inventors employed the accumulator "locally deformed at each beat by said player for accumulating an elastic strain energy and locally vibratory while said elastic strain energy is being released" in the percussion pad. The present invention realizes the accumulator in "an array of pillars". Since the pillars are spaced from one another, the player merely gives rise to the deformation of several pillars of the array by his or her beats. The other pillars keep themselves straight, and do not vibrate. Thus, only the several pillars transmit the vibrations to the air so that the drum sound faintly reaches the player and audience.

The Applicants admit that Belli discloses a type of drum muffler. The prior art drum includes "a sheet of plastic foam material 14", and the Examiner insists that the sheet of plastic foam material (14) serves as the "accumulator". The sheet of plastic foam material (14) may exhibit "sound absorbing characteristics". However, the sheet of plastic foam material (14) behaves differently from the array of pillars. As repeatedly written in Belli, the sheet of plastic foam material (14) reduces the overtones (see column 1, line 46- 47, column 2, lines 57 to column 3, line 5). However, the prior art drum muffler does not reduce the vibration energy of the drum sound as taught by Belli

in column 1, lines 58- 60 as "the present invention also provides a means for harmonically altering the overtones of a drum without reducing the sound" (the emphasis is added by the Applicants). In other words, the prior art drum muffler disclosed in Belli merely varies the frequency spectrum of the drum sound. If the sheet of plastic foam material (14) behaves as similar to the array of pillars, the drum sound is to be reduced, because only a small amount of vibration energy is transmitted from the locally vibrating portion to the air.

Belli suggests through the description recited above that he expects the friction loss in the sheet of plastic foam material (14). As well known to the skilled persons, the internal friction loss makes high-frequency vibrations decayed more rapidly rather than low-frequency vibrations are decayed. Thus, the Applicants believe that the accumulator or array of pillars are clearly distinguishable from the prior art drum muffler taught by Belli.

Claims 1, 2, 14-16, 20, 22, 25, and 28 stand rejected under 35 U.S.C. § 102(b) in view of Belli. Applicants respectfully traverse this rejection.

To anticipate a claim under 35 U.S.C. § 102, the cited reference must disclose every element of the claim, as arranged in the claim, and in sufficient detail to enable one skilled in the art to make and use the anticipated subject matter. See, PPG Industries, Inc. v. Guardian Industries Corp., 75 F.3d 1558, 1566 (Fed. Cir. 1996); C.R. Bard, Inc. v. M3 Sys., Inc., 157 F.3d 1340, 1349 (Fed. Cir. 1998). A reference that does not expressly disclose all of the elements of a claimed invention cannot anticipate unless all of the undisclosed elements are inherently present in the reference. See, Continental Can Co. USA v. Monsanto Co., 942 F.2d 1264, 1268 (Fed. Cir. 1991).

The present invention is directed to the accumulator or array of pillars, which locally vibrates so as to consume the vibration energy. This results in reduction of

percussion sound. On the other hand, Belli discloses the sheet of plastic foam material (14), which consumes the vibration energy through the internal friction so as to eliminate the overtones from the drum sound without reducing the drum sound. Thus, the particular feature of the present invention defined in independent claims 1, 20, 28 and 37 is not disclosed in the cited reference Belli. Even though a user replaces the accumulator of the present invention with the sheet of plastic foam material (14), the user cannot enjoy the silent performance without disturbing the neighborhood. If an electronic percussion sound generator is incorporated as defined in independent claim 37, the drum sound is mixed with the electronic drum sound, and the player feels the drum sound noisy.

Thus, the percussion pad defined in amended independent claim 1, silent percussion instruments defined in amended independent claims 20 and 28 and an electronic percussion system defined in amended independent claim 37 are clearly distinguishable from the prior art drum muffler disclosed in Belli. The Applicants respectfully request the Examiner to reconsider and withdraw the rejection under 35 U.S.C. § 102.

Claims 3-6, 10-13, 17, 23-24, 26, 27, and 29-40 stand rejected under 35 U.S.C. § 103(a). Applicants respectfully traverse this rejection.

To establish a *prima facie* case of obviousness, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify a reference or combine references to arrive at the claimed subject matter. The prior art references must also teach or suggest all the limitations of the claim in question. See, M.P.E.P. § 706.02(j). A reference can only be used for what it clearly discloses or suggests. See, In re Hummer, 113 U.S.P.Q. 66 (C.C.P.A. 1957); In re Stencel, 4 U.S.P.Q.2d 1071, 1073

(Fed. Cir. 1987). Here, the references, whether taken individually or in combination, do not disclose or suggest the invention claimed by the Applicant.

The Examiner additionally combines three documents, i.e., Duncan, Suenaga and Klynas with Belli and insists that the present invention defined in the dependent claims is obvious to the skilled persons. The Applicants respectfully disagree.

The rejected dependent claims are directly and indirectly dependent on amended independent claims 1, 20, 28 and 37. In other words, the particular feature discussed above is brought into the rejected dependent claims. As described hereinbefore, Belli is silent to the particular feature of the present invention. The Applicants carefully read the three references. However, the applicants can not find the particular feature of the present invention in the three cited references.

Although the Examiner insisted that the present invention had been disclosed in Suenaga, the Examiner changes the ground from Suenaga to Belli in the Final Official Action. This means that the Examiner admits that the Suenaga is silent to the particular feature of the present invention.

The Applicants draws the Examiner's attention to the title of the invention on the front page of Duncan. The title is "CAPACITIVE PRESSURE SENSING METHOD and APPARATUS". Duncan's constitution does not relate to any percussion pad, percussion instrument and electronic percussion system. Even if Duncan shows an array of pillars, Duncan's array of pillar does not aim at reduction of area through which the vibration energy is transferred to the air. In fact, Duncan teaches that the tapered projections (1 ') serves as a part of the electrode, which forms the capacitor together with the thin dielectric layer (2) and the other electrode (3) (see column 2, lines 44-57). Duncan does not expect the array of tapered projections (1 ') to reduce sound, but makes the array of tapered projection (1 ') locally brought into contact with the thin

dielectric layer (2) so as to "produce greater capacitive effect" (see column 3, lines 1-15).

If a skilled person requires a variable capacitor for a percussion pad, he or she may employ the variable capacitor in the percussion pad. However, there is not any motivation to employ the prior art conductive electrode of the capacitor in the reduction of vibrations. Note that the array of pillars does not aim at accumulation of electric charge. The array of pillars defined in the amended independent claims is expected to accumulate the "elastic strain energy". Thus, the Applicants believe that Duncan does not disclose the particular feature of the present invention.

Applicants admit that Klynas discloses drum pad isolation incorporated in an electronic percussion synthesizer. The prior art isolation is expected to mechanically isolate the transducers from each other (see the abstract). In the description, "the grommets 80 act to mechanically isolate the drum 40 from the housing 12 in such a manner which prevents undesirable mechanical coupling to the housing 12 and to the other drums" (see column 10, lines 21 to 24). No other means for reducing the vibration is not disclosed in Klynas. Klynas is silent as to how the grommets reduce the vibrations. However, it is clear that the grommets are neither locally deformed nor vibrate. Tabs (72) are held in contact with entire grommets (80) as shown in figure 2. Thus, they can neither deform nor vibrate. The grommets are quite different from the array of pillars. Thus, Klynas is silent to the particular feature of the present invention.

As described above, the particular feature of the present invention defined in amended independent claims 1, 20, 28, and 37 is neither disclosed nor suggested in Suenaga, Duncan and Klynas. In this situation, even if the teachings of Suenaga, Duncan and Klynas are combined with the teachings of Belli, the combination does not reduce the sound through the local vibrations of the pillars. In other words, the present invention defined in amended claims 1, 20, 28, and 37 is advantageous over the

combination. Thus, the Applicants respectfully request the Examiner to reconsider the rejection under 35 U.S.C. § 103(a).

Applicants have responded to all of the rejections and objections recited in the Office Action. Reconsideration and a Notice of Allowance for all of the pending claims are therefore respectfully requested.

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to withdraw the outstanding rejection of the claims and to pass this application to issue.

If the Examiner believes an interview would be of assistance, the Examiner is welcome to contact the undersigned at the number listed below.

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Respectfully submitted,

By 

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